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GARDEN AND FOREST

A JOURNAL OF HORTICULTURE LANDSCAPE ART AND FORESTRY

NOVEMBER 4 1891

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Garden and Forest.

Among the contents of next week's issue (No. 194) will be the following articles:

Public Gardens.
EDITORIAL.

Forest-vegetation of the Upper Mississippi.—III.
By PROFESSOR L. H. PAMMELL.

A New Hybrid Rose. (Illustrated.)

Notes on Small Fruits.
By C. E. HUNN.

The paper will contain an illustration of a new Hybrid Rose and one of Rosa multiflora, from photographs.

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The American Buckeyes.

THE North American forests are comparatively rich in Horse-chestnuts, or Buckeyes, as we are still apt to call them in America. The genus Æsculus, as it is now known, to which these plants belong, only contains thirteen species. Eight of these are American, if we include two little-known shrubs of southern Mexico and of the northern countries of South America, and another shrub of Lower California. Outside of America the genus is represented in south-western Europe, in the tropical forests of India, Assam and Burma, in northern and in central China, and in Japan. The different species fall naturally into two distinct sections. In the first the flowers are furnished with five petals, and the walls of the fruit, or pods, are thick and covered on their outer surface with sharp prickles. The common Horse-chestnut, which is a native of the mountains of Greece and which is now one of the most familiar of all ornamental trees, and the Indian species belong to this section. In the plants of the other, the flowers have only four petals, and the fruit is smooth with thin walls; they are American, Chinese and Japanese, and to them the name of Pavia was formerly given. The two sections are united, however, by one of our American trees, the so-called Ohio Buckeye, which has the flowers of the Pavias and rather thin-walled fruit, which, in its early stages at least, is covered with the prickles of the true Horse-chestnuts. And so it has seemed better to consider the Horse-chestnuts and the Buckeyes generically identical.

Five species grow naturally within the territory of the United States. None of these are so often planted here, however, as the European Horse-chestnut, and none of them, perhaps, are individually as beautiful as that tree, which surpasses all other members of the genus in the massiveness of its port, in the density of its foliage and in the magnificence of its great flower-clusters. But the massiveness and the formality of the head of the Horse-chestnut, while they make it a splendid object in some situations, render it a difficult tree to associate properly with other trees; and it usually looks out of place as an element in a picturesque landscape. Its value, however, for formal plantations, either in city streets or in the avenues of architectural gardens, was recognized in Europe two centuries ago, and no other tree has yet been found which surpassed it for such purposes.

If our American Buckeyes are not equal to their Old World relative in breadth and solidity of head and in floral splendor, they, in their turn, surpass it in grace and in their adaptability to harmonize with the other trees of the forest; and for general planting in this country they are, therefore, more valuable, especially the Sweet Buckeye, the *Æsculus octandra* of botanists, the largest, or, at any rate, the tallest of the American species. It is an inhabitant of the Alleghany region from western Pennsylvania to Georgia and Alabama, and of the Mississippi Valley. When it grows at its best, as on some of the slopes of the high mountains of Carolina and Tennessee, it is a noble tree, sending up a straight shaft two or three feet in diameter, sometimes free of branches for sixty or seventy feet, and often reaching a total height of ninety feet. The head is rather narrow and formal, and the branches are small and often pendulous. The leaves are of ample size, and are dark yellow-green, and rather paler on the lower than on the upper surface. The flowers are peculiar in the unequal size of the petals, the limbs of the upper pair being much smaller than the others and borne on slender claws which much exceed the calyx in length. The fruit is pear-shaped, often two inches long, and is beautiful and conspicuous. There is a variety of this tree found in some parts of the southern Alleghanies and in Texas with red or purple flowers. The yellow and red-flowered varieties are both hardy as far north as New England, and they are both useful ornamental trees, growing rapidly in good soil and harmonizing with the native trees of the north; and, unlike the Old World Horse-chestnut, they are not seriously injured by fungal diseases.

The so-called Ohio, or Fetid, Buckeye, *Æsculus glabra*, is the second of the Horse-chestnuts of eastern America which grows to the size of a tree. It is not as large as the Sweet Buckeye, and it is unusual to find it more than thirty feet in height, although sometimes, under the most favorable conditions, it grows to fully twice that size. The trunk and branches are covered with dark bark which separates readily into thin scales, and these make it easy to recognize the tree at a glance, even in winter and while still very young. The foliage is lustrous, dark yellow-green and rather conspicuous from the yellow midribs and veins of the leaflets. The flowers are of a pale yellow-green color, the petals nearly of the same length, although the lateral pair are much broader than the others. The Ohio Buckeye, which got its name from the fact that it was first known from the banks of the Ohio in Pennsylvania, belongs to the valley of the Mississippi; it is nowhere very common, and is even less common now than it was a hundred years ago. This is due in part, no doubt, to the fact that this tree always selects rich soil near the banks of streams or on river-bottoms, and has had to make way for the crops of the farmer. It is as hardy at the north as the Sweet Buckeye, but, from an ornamental point of view, is a much less desirable tree and hardly worth planting except as a curiosity.

The other Buckeyes of the east are inhabitants of the south, and do not attain to the dignity of trees. The most common of these two plants and the type of the old genus Pavia is the Scarlet Buckeye, or *Æsculus Pavia*. This is sometimes a low shrub, producing its flowers when only a few inches high, and sometimes reaches the height of a dozen feet or more with many slender straggling stems. It is widely distributed and very common in all the coast-region of the southern states, from Virginia to Texas, and west of the Alleghany Mountains, extending as far north as Kentucky and Missouri. The flowers are two or three inches long and bright red; they make a great show therefore, although

individually narrow and placed rather remotely in narrow few-flowered clusters; they appear with the unfolding of the leaves and offer a warm and cheerful welcome to the traveler from the snow and ice of the north as he first reaches the south in early spring. Although this pretty plant cannot withstand the severity of our northern winters, the name is often found in the catalogues of nurserymen who confound it with some of the red-flowered varieties of the Sweet Buckeye.

The fourth species of eastern America is the rarest of all our American Horse-chestnuts, although, strange to say, it is more commonly planted than any of the others, and, therefore, perhaps the best known. It is the *Æsculus parvifolia* or, as it was once called, *Æsculus macrostachya*. It is an inhabitant of the foot-hills of the extreme southern Alleghanies, where the younger Bartram found it, more than a hundred years ago, when he crossed from the sea-board to the head-waters of the Tennessee and saw, before any other educated man, the beauties of that marvelous region, covered then with one great forest, save where the Cherokee had made for himself a home by some swift-flowing river. The Dwarf Horse-chestnut, as the plant which Bartram discovered is now most often called, spreads, in cultivation, into a broad bush of compact habit, sometimes twenty or thirty feet across and six or eight feet tall. From spring to autumn it is a handsome plant as it stands out singly on the lawn, and in early summer it covers itself with long narrow spikes of slender creamy white flowers, made conspicuous by their long exserted stamens and yellow anthers. Although it is a southern species, peculiar to a region whose plants are not, as a rule, hardy at the north, the Dwarf Horse-chestnut flourishes in all parts of New England, where it flowers abundantly, although the season is rarely long enough for the fruit to ripen.

The last of the North American Buckeyes is an inhabitant of California—the *Æsculus Californica* of botanists. It is a low tree, sometimes thirty or forty feet in height, with a short stout trunk, often much enlarged just above the ground, and spreading branches, which form a wide dense head; or more often it is a shrub with stems ten or twelve feet high, forming dense thickets. It is widely distributed in all the foot-hill region of the Coast ranges and of the western slopes of the Sierra Nevada, from the northern almost to the extreme southern part of the state, lining the banks of many streams and the sides of innumerable cañons. The flowers of the California Buckeye are more beautiful than those of the other American species; they are white or pale rose color, an inch or more long, with broad, spreading petals and long conspicuous stamens, and are produced in long, very compact, many-flowered clusters. The fruit, which is pear-shaped and rather larger than that of our other species, is also ornamental. The only drawback to the California Buckeye, as it appears in the valleys of California, is, that the leaves, which appear early and are fully grown when the tree is in flower in May, ripen under the influence of the hot sun very early and often fall by midsummer, thus leaving the branches bare for a considerable part of the year.

An idea of the habit the California Buckeye is capable of assuming when it has grown under the most favorable conditions, and of the profusion of its flowers, can be obtained from the illustration which appears on page 523 of this issue. It represents a tree growing at San Mateo which is thirty-two feet high, with a head sixty feet in diameter and a forked trunk six and a half feet through two feet above the surface of the ground. It is an exceptionally fine specimen, although others nearly as large and symmetrical can be seen in the same region. For the photograph from which our illustration has been made we are indebted to Dr. L. D. Morse, of San Mateo.

The California Buckeye is not very often cultivated, although it was first sent to Europe nearly forty years ago and flowered in England as early as 1858. Unfortunately, it is not hardy in the eastern states, and probably, outside of California, it will never really flourish except in climates similar to that of the Pacific coast. It is well worth planting, however, in all the Mediterranean countries, and, perhaps, in Australia, as an ornamental plant, for it is one of the handsomest of the whole genus, and, when in flower, one of the most beautiful of all North American trees.

The Delayed Frost.

THE charm of a long autumn is very great, but seldom permitted by our capricious climate, which is apt to spoil the garden in September and then make the misfortune the more apparent by a succession of mild October days, when flowers and green leaves would suit the weather.

This year, which has made eccentric shifts of all the months in turn, giving us a dry April and a cold July, bestowed upon us a most enchanting autumn, mild and free from storms, so that vegetation remained perfect till late October, and the harvest-time was most propitious.

No early frost blighted the corn-field or marred the golden pumpkin's fairness. No rain made the apple and pear gathering a disappointment and a sorrow. Late flowers lined the garden-walks in unchilled splendor until mid-October, while the soft September haze and the mellow glow of the succeeding month showed Maples in full green leaf, and Oaks with only a touch of ripened crimson.

When the autumn comes thus slowly to maturity a tinge of russet and gold creeps softly into the landscape. Here and there is the accent of a red leaf or branch like the note of a trumpet in an orchestra. Soft browns steal into the meadows and form a shade on northern slopes. Dead are the Golden-rods and Asters, faded the road-side flowers. The Rose-hips make ruddy gleams in the bushes, and a few belated Barberries cling to their thorny stems in wizened splendor, while other berries, purple and black, cluster by the fences, and the nut-trees hang out their smooth or prickly burrs, promising a harvest of brown fruit.

This is the green old age of the year, cheery and fruitful, bountiful and rich. Gone are the hurry of spring and the burden of summer, the slow harvest has been gathered, and repose has come to the teeming earth. Now must the gardener look forward and plan for the coming season, and set his bulbs for spring blooming, and clear away the rubbish of dead stems from the flower-beds, and transplant perennials that they may blossom freely the following summer.

It is well in planting a garden to arrange for this season, which is so pleasing, by having a profusion of hardy plants that are not easily disheartened by a chill, and make a brave show as the year wanes. This is a care often neglected by public gardeners, who stock their parterres with ephemeral blooms that the first cold breath destroys, leaving but a dreary group of dry sticks behind.

Well mingled with these more delicate plants should be those hardy perennials that lift their gallant little heads and smile in the very teeth of winter. The hardy Chrysanthemum, the Marigold and Calendula are a delight in the late autumn, with their cheery tints. The Salvia, less hardy, is the glory of a September garden, and many another flower, with a little shelter at night, will make a walk gay and cheerful that would otherwise be gloomy with decay and desolation. The Japanese Anemone is a treasure at this season, and those bushes bearing ornamental fruit which hangs on even amid the snows of winter should never be omitted from a border.

Like a happy temper in adversity is a gleam of color in the garden in the late autumn. One draws a lesson of good cheer from a Calendula, so undaunted and gay even when the snows are falling on its golden head. A cluster of red berries on a dry stem give a distinct joy in early winter, and life is made brighter by the aspect of hardy blossoms and hardier fruit when all the trees around are stripped of foliage.

In summer the charm of a garden is in its coolness and shade, in the dark shelter of thick trees and the quiet of a shaded arbor. In the autumn we seek the sunshine and desire color and warmth, wishing to forget the coming cold and the swift fading of leaf and flower.

It is like the natural clinging of man to life which increases as years steal upon him. Youth does not dread death as age shrinks from it. The habit of living becomes stronger as we descend the hill, and the suggestion of interruption seems impertinent. The late scentless flowers are more precious than the summer Roses, for their time will soon be gone. Nature cheats us with her autumn splendor, which beguiles the mind into forgetting that it is the precursor of decay. While we admire the glory of a Maple-grove, we do not realize that the storms of winter are gathering behind the forest. When the mountains are purple in the low sunlight we forget the snows that shall soon whiten their summits, and there is wisdom in this natural instinct that forbids foreboding when joy is at hand, which can rejoice in the present without seeking to lift the curtain of the future.

Let us rejoice, then, in the autumn flowers; in the soft atmosphere that clothes the world with beauty; in the great moon's yellow light; in the round, soft clouds, and the wild skurry of the dun rack that scuds across the heavens when the breeze rises. Full soon will that searching wind scatter the jewel-like leaves, and tear the last petal from the shrinking flowers, while the grass grows brown and sear, and the soft earth stiffens like a body from which life has departed. Too soon will the valiant head of the last Daisy be buried in a mantle of snow, and the leaden sky bend low above a frozen earth. Let us rejoice, then, while we may, for the days shorten, and with them our summer joys and the lives of the autumn flowers.

We are indebted to Miss Graceanna Lewis for the privilege of publishing the following letter from the venerable President of the Delaware County (Pennsylvania) Forestry Association:

Esteemed Friend,—At thy request I visited the trees of which I spoke at the last forestry meeting, and which I knew sixty years ago. I found them looking very much as they did then, and not very perceptibly larger. The first one is on the farm of John Beeson, in Upper Chichester, near the Baltimore & Philadelphia Railroad, and about half a mile west of Ogden Station. It is a Chestnut-tree, and at three feet high its circumference is twenty-seven feet one inch and a half; at six feet high, it is twenty-four feet five inches in circumference, and one foot from the ground it is thirty feet nine inches in circumference. About one-fourth of the body of the tree is dead up to the limbs, which are about twelve feet high. The top is decaying in many places, but it still measures eighty-seven feet from out to out.

The second one is a Cherry-tree on the farm of George Broomall, about a quarter of a mile south-east of the Chestnut-tree. It is fourteen feet and a tenth in circumference at three feet high, and fourteen feet at six feet high. The top measures seventy-one feet and three-tenths from out to out. This tree is in full bearing, having had a large crop of cherries taken from it this year. I found still enough cherries to remind me of the taste of them sixty years ago. The fruit is natural, quite as large as the Bleeding Heart cherry and quite as sweet, and is black in color. I learn that many trees in the neighborhood have been grafted from it, but it is said that the fruit on the grafted trees is not quite as large as that on the original tree.

The third is a Beech-tree in Lower Chichester, on the Naaman's Creek Road, and it is supposed to mark the place where the circular boundary-line between Pennsylvania and Delaware crosses that road. At three feet high it is fifteen feet and eight-tenths in circumference. It is quite a flourishing tree yet, the top being ninety feet from out to out.

The Cherry and the Beech appear to be good for some years to come. The limbs of the Cherry can be reached from the ground, and I recognized those of them by the aid of which I climbed the tree when a boy. The Beech is covered to the height of convenient reaching with the initials of many persons whom I knew in that neighborhood many years ago.

Thy friend, *John M. Broomall.*

Filices Mexicanæ.—III.

WE continue, this week, the enumeration of the Ferns collected in the states of Nuevo Leon, Jalisco, San Louis Potosí and Machoacan, Mexico, during the seasons of 1888, 1889 and 1890, by Mr. C. G. Pringle, of Charlotte, Vermont, together with notes and descriptions of new species and varieties by Mr. George E. Davenport, of Medford, Massachusetts.

LLAVIA CORDIFOLIA, Lagasca (1990). Shaded rocky cañons, Sierra Madre, near Monterey, July, 1888. Mr. Pringle wrote of this Fern that it was "seen chiefly in a broad cañon of the Sierra Madre near Monterey, through which flowed a brook which had brought down from the mountain and strewn along its borders piles of stones of various sizes. Among these stones this plant found favorite conditions, and grew in great clumps two or three feet high."

LYGODIUM MEXICANUM, Presl. (3318). Low forests, Las Palmas; stems twining ten to twelve feet on shrubs; October, 1890.

NEPHROLEPIS CORDIFOLIA, Presl. (1835). Wet cliffs near Gaudalajara, December, 1888.

NOTHOCHLÆNA ASCHENBORNIANA, Klotzsch (3297). Shaded ledges, San Jose Pass, October, 1890.

NOTHOCHLÆNA AURANTIACA, D. C. Eaton (1840 and 2587). Dry shaded ledges and cliffs of the Barranca, October and November, 1888–1889.

NOTHOCHLÆNA BRACHYPUS, J. Smith (1787). Damp shaded banks of gullies and ditches near Guadalajara, November, 1888.

NOTHOCHLÆNA CANDIDA, Hooker (2021). Sierra Madre, near Monterey, June, 1888.

NOTHOCHLÆNA LEMMONI, D. C. Eaton, var. STRAMINEA, n. var. (2830). Rocky hills near Guadalajara, December, 1888. A form with yellowish brown, nearly straw-colored, rounder (more nearly terete), and stouter stipites, and rachises less distinctly channeled than in the type; scales of the rhizoma and stipes lighter colored than in the normal form, and with broader, more membranaceous margins; sori also lighter colored, browner. The whole aspect of the plant strikingly different, especially in color, from the normal form, even as collected in Mexico by Dr. Palmer, and appearing to me worthy of recognition as a good variety. Dr. Palmer's 701, from Chapala, 1886, is identical with this, but shows a nearer approach to the normal form than Mr. Pringle's plant, and the deciduous scales have disappeared altogether from the stipites.

NOTHOCHLÆNA NIVEA, Desvaux, var. FLAVA, Hooker (2581). Limestone ledges, mountains near Monterey, June, 1888.

NOTHOCHLÆNA RIGIDA, *n. sp.* (2599). Root-stock rhizomataceous, moderately stout, clothed with dark brownish black opaque scales; stipites stout, rigid, approximate, 3′ to 4′ long, and, as well as the main rachis, terete, dark chestnut-brown, dull-polished, sparsely clothed from the base upward with dark brown opaque scales and a deciduous white powder; laminæ 8′ to 12′, or more, long, 2′ to 3′ broad, only once really pinnate, but appearing as if bipinnate, long-lanceolate, broadest in the middle, with upward of twenty or more pairs of sessile pinnæ; pinnæ acuminate-lanceolate, deeply cut almost to the rachises into 8 to 12 linear, pinnatifid, obtuse divisions on each side, those on the lower side much the longest, lowermost pinnæ gradually reduced; upper surface naked, under thickly coated with white powder; sori light brown; margins slightly recurved.

Habitat: Limestone ledges, Sierra de la Silla, Monterey, May 31st, 1889. This fine new Nothochlæna bears some resemblance to *N. Lemmoni*, and some of the smaller specimens might easily be mistaken for that species; it is, however, a much coarser plant, with more compound fronds and a more rigid habit. Professor Eaton, whose kindly assistance is continually placing me under obligations which I take pleasure in acknowledging, observes, also, that the slightly revolute margins indicate a much closer approach to Cheilanthes than in the case of *N. Lemmoni*, to which I would add that there is about this Fern also, as distinguished from *N. Lemmoni*, that indescribable atmosphere, or feeling, which oftentimes enables one to distinguish one Fern from another by the mere handling. The illustration on page 521 is from a drawing by Mr. C. E. Faxon.

NOTHOCHLÆNA SCHAFFNERI, Underwood (in litt.), var. MEXICANA (*N. Nealleyi*, Seaton, var. *Mexicana*, Davenport, in *Botanical Gazette*, February, 1891). Dry, shaded ledges of the Barranca, November, 1888. No. 1864. Fronds larger, more rigid and more compound than in the type. Dr. Palmer's 555, from the cañon of Rio Blanco, September, 1886, belongs here,

and I suspect Schaffner's 962, from the San Rafael Mountains, does also.

[Note.—Since the publication of my note on Pringle's No. 1864, and *Nothochlæna Nealleyi* in *Botanical Gazette* (l. c.), Professor Underwood has identified the latter Fern as Fournier's *Aleuritopteris Schaffneri*, and having personally examined and compared Schaffner's specimens from his herbarium with the specimens of *N. Nealleyi*, now in my possession from Mr. Seaton, I can vouch for the accuracy of his determination. There can be no question as to the identity, and as Fournier's species was published and described in 1880 (Bull. Bot. Soc. de France, xxvii., p. 328) from specimens collected by Schaffner in the mountains of San Miguel, in September, 1876, it necessarily supersedes and retires Mr. Seaton's *N. Nealleyi*. Schaffner's specimens, as well as those from Mr. Nealley's later collection, show that the species, like nearly all of its congeners, has the stipites, rachises and sori *brownish* as well as *blackish*, and that the frond becomes bipinnate.]

Holiday Notes from Switzerland.—I.

THE latter half of July and the beginning of August of the current year were spent by Mr. Bean, one of my Kew colleagues, and myself in Switzerland, and we remained in the open air by far the greater part of every day. A large number of species was seen by us, and the following notes may be of interest to those readers of Garden and Forest who cultivate some of the beautiful herbaceous and alpine plants we noted, but who may not have had an opportunity of seeing them amid their natural surroundings. We took the steamer at Lucerne for Fluelen—the port of the canton of Uri—and enjoyed to the full the glorious scenery, which, according to many travelers, is unsurpassed in Switzerland, and even in Europe, for magnificence. The beautiful banks are also intimately associated with those historical events and traditions which are so graphically depicted by Schiller, in his William Tell. From Fluelen we took train to Göschenen, and then began our walking tour through Andermatt and Hospenthal to Tiefenbach, thence over the Furka Pass to the Rhone Glacier and afterward down the Rhone Valley to Sierre. From the last-named town we turned up the Val d'Anniviers to Vissoye and then ascended to the Hotel Weisshorn, built at an elevation of about 7,550 feet above sea-level, on the Tetaz-Fayaz, or Sheep's Head. Here we stayed a week, and in that time had not nearly exhausted the district when we were compelled to return to duty.

Shortly after leaving the station at Göschenen (3,640 feet) we entered the sombre rocky defile of the Schöllenen, bounded by lofty and almost perpendicular granite rocks, at the base of which dashes the Reuss. Before arriving at the Devil's Bridge we noticed large sheets of *Astrantia minor* on the flat rocky ledges by the road-side; this is a charming plant; the umbels are about half the size of those of *A. major*, and, like that species, it is thoroughly deserving of a place in any rockery or herbaceous border. Strange to say, however, it is very rare in cultivation in Britain, and might be inquired for in vain in most establishments, even where alpine and herbaceous plants are grown for sale in enormous quantities, both as regards number of species and individuals. In the crevices of steep rocks *Saxifraga Cotyledon*, with its dense rosettes of grayish green leaves surmounted by graceful waving panicles of white flowers, was certainly both conspicuous and beautiful enough to satisfy even the most exacting; in some parts of Switzerland, notably at Locarno, this species is so plentiful that its panicles, together with the flowers of *Lilium bulbiferum*, are used in the decoration of the temporary altars which are erected at the street-corners on the occasion of the feast of Corpus Christi. For this fact, as well as for information as to the distribution of Swiss plants, I am indebted to the classical work of Dr. H. Christ, "La Flore de la Suisse et ses Origines." Let me add, by the way, that botanical and horticultural readers of Garden and Forest who contemplate a Swiss tour should peruse this book before starting, and also take it with them for reference. The Turk's Cap Lily (*L. Martagon*) was also seen growing among the sparse brush-wood on the steep slopes; in several English counties this species is known by the rather droll name, "Turn again Gentleman." Under similar conditions a yellow Foxglove (*Digitalis lutea*) was seen. The three last-named plants, however, were seen after passing the Devil's Bridge, which, by the way, was "ornamented" by a staring advertisement painted in large letters on the surface of the smooth perpendicular rock, and by a rude picture, a conventional representation of his Satanic majesty watching with dismay the first living thing—a hungry dog—which crossed the bridge, just then completed by the pious Abbot Giraldus, of Einsiedel, for the convenience of pilgrims on their way to Rome. Every one is familiar with the way in which the devil was cheated on this occasion, for is not the tradition made use of by Longfellow in his "Golden Legend"?

Before reaching the Urseren Valley a fine Dianthus was collected on hot dry banks; under similar conditions *Cerastium arvense* was seen, forming dense snowy sheets of blossom. Wonderfully differing in aspect from the wild region already traversed is the above-named valley, with its fertile green pastures watered by the Reuss; it is about eight miles long and is surrounded by lofty and barren, partially snow-clad, mountains. Here winter lasts nearly eight months, and fires are often necessary during the short summer. Along the numerous water-courses *Ranunculus aconitifolius* grows in abundance; the double-flowered state of this species—which is so frequently met with in old-fashioned country gardens—is known in England under the pretty name of "Fair Maids of France." The Snake-root, *Polygonum Bistorta*, was seen in such profusion as to color the entire meadows, and this, together with *Campanula rhomboidalis*, produced such color-effects as are, perhaps, not to be seen away from an alpine meadow. The intensely bright sunlight makes up somewhat for the short summer, and the plants bear flowers deeper and richer in color than do the same species under cultivation in Britain. The tuberous roots of the Polygonum are astringent and contain a considerable proportion of starch; they were formerly much used in medicine, and are still highly esteemed by the rustic herbalist; in some countries they are turned to account as food during famine-times. At Andermatt, the principal village of the valley, prevails a curious custom which also obtains in some other parts of Switzerland; the charnel-house attached to the church is adorned with skulls bearing inscriptions, "On the occasional opening of the graves the skulls are conveyed by the relatives of the deceased to the charnel-house, where they are kept in symmetrical piles." Between Andermatt and Hospenthal, in the small patches of rye, *Delphinium consolida*—the parent of some of our races of cultivated annual Larkspurs—occurred as a weed, as well as another fine blue-flowered plant, the Viper's Bugloss (*Echium vulgare*), a biennial which, if cultivated in rich garden ground, increases wonderfully in size and vigor, but, on the other hand, really loses much of its beauty. From Kealp onward many characteristic alpine plants began to be conspicuous in the steep pastures. One of the most charming was *Campanula barbata*, a beautiful Bell-flower, from three to twelve inches in height, with large pendulous bearded corollas, varying in color from white, through pale porcelain blue, to deep blue. *Veratrum album*, the so-called White Hellebore, was perhaps more striking as a foliage plant than by reason of its tall panicles of greenish flowers. *Gentiana purpurea*, about a foot in height, with a terminal cluster of large red-purple flowers, was in full blossom here at an elevation of about 5,500 feet; much later on, about 1,500 feet higher, we only found it in bud.

Royal Gardens, Kew. *George Nicholson.*

New or Little-known Plants.

Dendrobium Phalænopsis.

THIS is the most beautiful of all the Dendrobiums hitherto introduced from northern Queensland and the adjacent islands. It was discovered at Cape York, on the extreme north of Queensland, by a Captain Broomfield, who introduced living plants of it into his garden in Balmain, Queensland. Here it flowered, and was figured by Fitzgerald in his folio work on Australian Orchids. He also sent a description of it to the *Gardeners' Chronicle* for July, 1880. His figure represents a plant with pseudo-bulbs eighteen inches long, terminal, erect racemes, produced from the matured pseudo-bulb, the longest raceme being one and a half feet long and bearing ten flowers and buds. The flowers measure two and a half inches across, and they are described as being lilac in color, with a few small dark calli on the disk of the labellum, and two white glands at the base of the column. There is a family likeness between *D. Phalænopsis* and *D. bigibbum*, *D. superbiens* and *D. Goldiei*, but, as Fitzgerald points out, the first-named is easily distinguished from these three in the form of its flowers and the shape of the labellum. The name *D. Phalænopsis* was given by Fitzgerald from the likeness of its flowers to moths as well as to those of the genus Phalæ-

nopsis. The plant in Captain Broomfield's collection flowered the following April, and produced 300 blooms.

In 1882 Mr. Forbes visited some of the islands north of Queensland on behalf of the Geographical Society of London. He brought back with him several living plants, and among them was a plant of this Dendrobium which he obtained in Timorlant. This plant came to Kew, where it flowered in September, 1884, and a figure of it was published in the *Botanical Magazine*, t. 6817. There is a decided difference between the plant flowered at Kew and that figured and described by Fitzgerald, the scape of the latter being erect, while that borne by the Kew plant was pendent; the lip of the latter was maroon-crimson, whereas Fitzgerald figures and describes his plant with uniformly lilac-purple flowers. However, Sir Joseph Hooker considered and described them as identical. Several plants of *D. Phalænopsis* had been distributed from Kew, and these are now known as the Kew variety to distinguish them from an exceedingly beautiful form of the same species. This was named *D. Phalænopsis*, var. *Schrœderianum*, by Reichenbach in compliment to Baron Schrœder, in whose collection it first flowered at Egham, near Windsor.

Fig. 80.—Nothochlæna rigida, n. sp.—See page 519.

He procured it from Messrs. Veitch & Sons, who had imported several plants of it through the Rev. Mr. Macfarlane, a missionary in north Australia. Mr. Lee, of Leatherhead, also obtained a plant from Veitch, who bought it back again for fifty guineas when Mr. Lee's plants were disposed of by auction. This plant also went into the collection of Baron Schrœder, who is now the sole possessor of the variety. This is certainly a very beautiful Dendrobe. There is a figure of it in *Williams' Orchid Album*, iv., t. 187. It has flowers half as large again as the Kew variety, and the color is much deeper and richer.

Until this week *D. Phalænopsis* was coveted by all who had seen it as exhibited in flower last spring, but Mr. Sander has lately imported a large quantity of what he declares to be the same as Baron Schrœder's variety, and has disposed of nearly a thousand plants by auction sale to-day.

The plants were in very good condition, many of them having young growing shoots. Some of them had pseudo-bulbs over three feet long, one I measured being forty-three inches, and as thick as a man's thumb. Others had thinner and shorter pseudo-bulbs, and were more like what we had hitherto known as *D. Phalænopsis*. Altogether, there was very considerable variation in the length, thickness, shape and color of the pseudo-bulbs on the plants sold to-day. I noticed, too, that the old flower-scapes were nearly all erect; certainly not one was what might be called pendent. If these plants are really *D. Phalænopsis*, then it is a very variable species. Some of the dried scapes exhibited were nearly three feet long, and bore scars of twenty flowers. Dried flowers were also on view, and they were nearly four inches across. Mr. Sander says that there are varieties with white, rose and crimson, as well as purple flowers, among those sold to-day.

Where these plants were collected has not been divulged, but it is probable that their home is not far from New Guinea. Mr. Sander publishes in his sale-catalogue a letter from the collector who sent home the Dendrobiums, which is interesting enough to quote in full. It is headed "The King of Dendrobes." The collector writes:

"With great pleasure I announce to you the fact that I arrived here yesterday with my plants in the finest order, and you will at last get striking novelties from this terrible country. It was the best time to collect the Dendrobe; they had just finished growing, and some were in full bloom. I forgot all my troubles when I saw the first on some rocks, on the

bare limestone between a great number of human skulls and bones. The natives do not bury their dead, but put them in a kind of coffin and then place them on these solitary rocks, which stand scattered about the shore or beach, and which can be reached or got at only at ebb tide. Here in these rocks the plants grow most luxuriantly, exposed to the full sun, and when the weather is rough they often get the spray of the sea-water. At first the natives did not like the idea of collecting the plants; they were afraid the souls of the departed, whose bones were lying there bleaching in the sun, would resent it, but when they saw the gorgeous handkerchiefs, beads, looking-glasses, and brass wire I offered them for the plants, they did not trouble themselves any more about the souls of their ancestors, but boldly went and rooted out every plant to be found. The plants grow chiefly on these solitary, much-honeycombed limestone rocks, always exposed to the sun or getting only very little shade during a part of the day. They also grow on trees in the Ficus-groves more inland, although very sparingly. I found the big specimens on the highest trees in the dense jungle, where they are very rare, and I only saw a few on the very highest trees. I should think in cultivation these plants will require plenty of moisture while growing, and a culture like that of *D. nobile*.

"In size and coloring it varies as much from the ordinary *D. Phalænopsis* as *D. Wardianum* from *D. crassinode*; the largest flowers measured four and a half inches across, none measuring less than three and a half inches. I saw a few plants with branched spikes, but this seems only excess of strength; the spikes are generally from twenty to thirty-five inches long; on some I counted up to twenty-five flowers; the color is very variable, ranging from pure white to dark purple-red, and some are differently colored and variegated, but bright and clear; the flowers last a long time, individually eight weeks. During my stay of three months I saw many plants in flower in April, May and June. A Dutch trader, one of our party, who has been here twice, says that he has seen it in flower in July, August and September. It is, without doubt, the finest Dendrobe in existence, and a gorgeous Orchid."

The sale was a most successful one, the prices fetched by the majority of the plants ranging from twenty to two guineas. Mr. Sander estimated that the seven hundred and odd lots had realized about £2,000.

D. Phalænopsis requires plenty of heat, sunshine and moisture; far more than suffices for *D. nobile*. In this respect it does not differ from its near relatives, *D. superbiens* and *D. bigibbum*. The flowering of the plants of this new importation will be awaited with some interest. At present I am inclined to believe that *D. Phalænopsis* as figured and described by Fitzgerald is not the same species as that figured in the *Botanical Magazine* under the same name, and also that Mr. Sander's plants are likely to include both these, besides, probably, other forms.

Kew. *W. Watson.*

Foreign Correspondence.

London Letter.

Conifers, Asters and Sunflowers.—An exhibition and conference devoted to these three classes of plants, and extending over nearly a week, has been the special horticultural feature of the present month. The Royal Horticultural Society had invited growers of these plants in all parts of the United Kingdom to send specimens, photographs and pictures of them to Chiswick for purposes of comparison and observation. The exhibition which resulted might almost have been styled an American one, all the Asters and Sunflowers, and the majority of the conifers shown being introductions from your country. The actual number of specimens, especially of Coniferæ, was so large that the extensive space provided for them was not nearly sufficient to admit of their being set out so as to be seen to proper advantage. From Kew alone specimens of conifers representing over five hundred distinct species and varieties were sent, and the trade dealers in these plants, besides the principal private growers, were equally generous in their contributions of specimens and plants.

Papers were read by scientists specially interested in the plants exhibited, as well as by cultivators, and the amount of valuable information thus brought together was very great. Dr. Masters, Professor Marshall Ward, Mr. G. Nicholson, Mr. Malcolm Dunn, Mr. H. Veitch and several others read papers dealing with Coniferæ in their various aspects. The paper by Dr. Masters was botanical and historical. Professor Ward devoted himself to a popular description and account ot the diseases, fungal and other, which attack coniferous plants. This paper, or rather a resumé of it, was listened to with great interest, and its appearance in the journal of the society will be welcomed by all who are concerned in the management of these plants. Mr. Nicholson pointed out some of the most effective kinds for use in landscape-gardening; Mr. Dunn, dealing partly with the same subject and partly with the economic value of some conifers, alluded specially to *Abies Albertiana, A. concolor, A. Douglasi, A. grandis, A. magnifica, A. Nordmanniana, Cupressus macrocarpa, C. Lawsoniana, C. Nutkænsis*, the Larch and *Thuia gigantea*. These he placed in the first rank as trees likely to prove important in England, either for timber or other valuable uses. Mr. Dunn has charge of the gardens and forests at Dalkeith, in Scotland, where conifers are exceptionally well grown. Mr. Thiselton-Dyer spoke of the beauty and perfection of the large number of these trees cultivated in Scotland, and suggested that their vigorous health, as compared with what is seen further south, is accounted for by the conditions of climate and of atmosphere in the north, which are not to be met with in the southern part of the kingdom.

There is a growing opinion among English landscape-gardeners that conifers are far too lavishly and recklessly used in the making of gardens here. They are supposed to be the right thing and are consequently planted in all kinds of gardens, in many of which the conditions essential to the health of conifers are not possible. A healthy Pine, or Fir, or Cypress is pleasant to look at almost anywhere, but such plants, when in bad health, are the most wretched-looking of all trees. We are apt to overdo the evergreens. No less an authority than Richard Jefferies raised his voice against the "foreign evergreens" being allowed to crowd out almost entirely the native and other deciduous trees. "Let the Cedar and the Laurel," he wrote, "and the whole host of invading evergreens be put aside by themselves, in a separate and detached shrubbery, maintained for the purpose of exhibiting strange growths." It is intended to publish in the journal of the Royal Horticultural Society a list of all the kinds exhibited, with their correct names and synonymy; and, as far as possible, the conditions under which the best examples are grown. The most suitable kinds to plant in the garden, the shrubbery or the park will also be tabulated.

The Asters were exhibited in considerable quantity and formed a striking feature of the show. Papers upon them were contributed by Professor Goodale, of Harvard, and Mr. C. Wolley Dod, the former being devoted to the botanical features and geographical distribution of the genus, with a general review of Professor Asa Gray's latest writings on American Asters. Mr. Dod dealt chiefly with the culture, selection and cross-breeding of Asters, with a view to improving them in habit, size of flower and variety of color.

Asters are features in the gardens at Kew in September and October. They are planted in large beds or singly in shrubberies, and even in the rock-gardens, as well as in the beds devoted to a collection of hardy *Compositæ*. Nothing could be more effective than large masses of such species as *A. amellus, A. acris, A. Novi-Belgi* and *A. Novæ-Angliæ*. A white-flowered seedling named Harper Crewe is much admired.

THE SUNFLOWERS (Helianthus) had two papers devoted to them—one by Mr. D. Dewar, of Kew, who dealt with the botany and history of cultivated Helianthi; the other by Mr. E. H. Jenkins, who discussed their cultivation. Mr. Dewar's paper is so interesting that I will defer my remarks upon it for another occasion. The necessity for replanting frequently and manuring heavily for all the Sunflowers was emphasized by Mr. Jenkins, for, although they will grow in the poorest soil, they amply repay liberal treatment. He stated that it is possible to reduce the height of the tall-growing sorts by cutting back the stems to within about six inches of the soil early in June. In this manner Mr. Jenkins has reduced the height of the tallest to three feet. Those who object to many of these p'ants in small gardens because of their height should try Mr. Jenkins' plan for lowering them.

Kew. *W. Watson.*

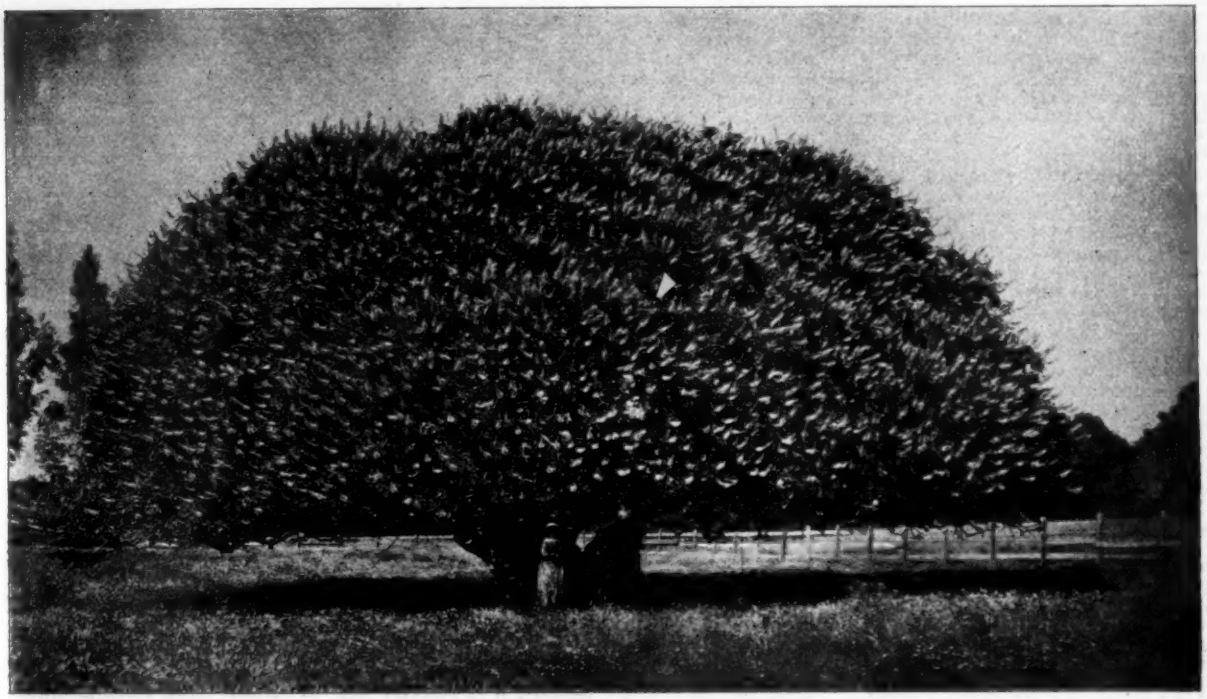

Fig. 81.—The California Buckeye (*Æsculus Californica*).—See page 517.

Cultural Department.

The Present Status of Native Plum Culture.

THE dearth of hardy fruits in the north-west is naturally directing attention to the native Plum. In the northern species of this fruit, the *Prunus Americana*, is found a tree that, when properly grown, needs not fear frozen mercury or the brightest summer or winter suns, and that suffers comparatively little from fungal diseases. The pioneers of the north-western states, in common with those of the east, generally regarded the native Plum as of too little value for culture. But when sad experience at length demonstrated that the finer European Plums are unable to endure the severe climatic conditions of these states, the better native Plums were found far preferable to none, and the thickets where this fruit still abounded began to receive protection. Occasionally a specially meritorious tree, or clump of trees—for their suckering tendency often caused the trees to grow in clumps—was honored with a removal to the farmer's yard or garden, and thus the good work of selection was almost unconsciously commenced.

As the real merits of this fruit begun to appear, the more progressive farmers, and especially those whose tastes inclined in the direction of horticulture, begun to espouse its cause in earnest. Mr. J. S. Stickney, of Wauwatosa, Wisconsin, in an address before the Iowa Horticultural Society in 1877, said: "I am dreaming that in these native Plums there is something valuable. Their endurance, productiveness and perfect hardiness should and must be made useful to us, and we have no right to rest or flag in our efforts until we have an orchard of native Plums that shall command in market two to four dollars per bushel, and yield crops as abundant and frequent as the wild ones in our thickets now do. About the possibility of this there is very little doubt." This was written but fourteen years ago, and it seems well to add that this result has already been attained. During a visit to Mr. O. M. Lord, of Minnesota City, Minnesota, early in September last, I saw plums sold from his native plum-orchard at sixty-five cents for the ordinary peach-basket, holding about a peck, while the common native plums, gathered indiscriminately from the wild thickets, were selling at from forty to sixty cents per bushel.

What can be said of the quality of the best native plums? This question involves some difficulty, since doubts have been raised regarding the parentage of some of the finer varieties. If the Cheney, Gaylord and Rollingstone plums are pure natives, the gulf between our finest native varieties and the Green Gage or Jefferson is not so great that we need to despair of filling it. It must be confessed that the average wild plum, with its diminutive size and tough acerb skin, would not make a creditable showing by the side of its more cultivated European cousins, but in the Gaylord and Cheney we have size that eclipses the Green Gage, a thin and fairly tender skin, with but the merest trace of acerbity, and with a flesh that for luscious juiciness would suffer little in comparison with the finest European sorts. In the Rollingstone we have a plum of a size equaling the Green Gage, of delicious quality, with a skin which, though rather thick and tough, is without acerbity, and parts readily from the pulp. The fruit has been shipped from Minnesota City to St. Louis and to New Jersey, arriving in excellent condition. The tree is very hardy and productive, and at Minnesota City is said to have missed but two crops in thirty-five years. Some of the finer varieties tend to rot under culture more than in their native state, though I do not know that the tendency to this trouble is greater among the native than the European sorts.

Professor Budd suspects that most of the larger so-called native Plums that have recently been brought to notice in Iowa and Minnesota may be hybrids between *Prunus Americana* and

P. angustifolia, resulting from pits of the latter species having been brought by the Indians from the south or south-westward. If this is true, it would seem that we have discovered a key to the improvement of the former species, for these hybrids, if hybrids they are, manifest a very satisfactory degree of hardiness. The varieties derived from *P. angustifolia* have not thus far proved hardy in Minnesota or Wisconsin.

The soil-requirements of the native Plum appear to vary much with different sorts. Varieties that succeed well on a sandy soil may prove worthless on clay, and vice versa. This often explains the discordant and even contradictory reports so often read regarding the value of certain varieties. The sorts that succeed best at Mr. Lord's place, which is on fine alluvial sand, are not, as a rule, the ones that have proved most successful with Professor Budd at Ames, Iowa, where the soil contains more clay. A few varieties, however, like the De Soto, appear successful in nearly all localities.

The susceptibility of the native Plum to injury from the Plum curculio has been the subject of some dispute. It may be safely said that the native Plums possess no immunity from attack by this destructive insect. It appears, however, that the proportion of larvæ that develop is much smaller in most native varieties than in the varieties of the European Plum. How far this is due to the thicker skin of the native species it is difficult to say. The idea that the native Plum requires no protection against the curculio is erroneous. The proportion of fruit that is destroyed by this insect, even on nearly worthless wild varieties, is often very large. Few precautions seem to be taken at present to hinder the work of the curculio by those who grow native Plums, but I think the time is not far distant when some protection will be regarded as a necessity by the growers of the finer varieties.

It is generally conceded that productiveness in the native Plums is promoted by the intermingling of the trees of different varieties. Certain varieties appear nearly incapable of fertilizing their own flowers, while others, as the De Soto, seem specially adapted to serve as fertilizers. It is possible that much is yet to be learned upon this point, and that the complaint of unproductiveness in the native Plum may often arise from an unfortunate combination of varieties.

The production of the finer native Plums on a commercial scale is as yet in its infancy, but promises rapid development. The planting of some of the recently introduced varieties is now being delayed only by the limits of propagation. The first orchard of native Plums started with reference to selling the product, appears to have been that of Mr. Lord, of Minnesota City, which is now about twenty years old. The number of such orchards at the present time is not large, but is increasing.

Some difficulty is experienced in propagating the native Plum under north-western conditions. The stocks used for the European Plum are not satisfactory, and, so far as fully tested, only the native Plum itself is best adapted for its own stock. The seedlings of pure natives are rather difficult to obtain, the demand for them at present exceeding the supply. The pits are not a commercial commodity, and must be picked up, usually in small lots, and they are not very reliable for germination. Budding in our hot summers is a precarious operation, and the keeping of cions and root-grafts is attended with some difficulty by those who have not yet learned the secret. Even top-grafting in our fickle spring weather is somewhat uncertain. But these difficulties will doubtless disappear before the knowledge developed by careful experiments.

University of Wisconsin. *E. S. Goff.*

Roses.

THE much-dreaded "black-spot" often makes its appearance on Roses under glass the latter part of September or early in October, and while in some instances this disease seems hard to account for, in a majority of cases it is caused by an excess of moisture, either at the roots or in the atmosphere. All syringing or watering should be done early in the day, so that the atmosphere may not be saturated with moisture at night, for if the foliage of the Roses shows beads of moisture in the morning it is evident that the house is too damp or too cold, or both, and as a result a visitation of "black-spot" may be looked for. A solution of sulphate of copper has been used for this fungus by some growers with a certain degree of success; in fact, a bench of La France Roses, on which an experiment with copper solution had been tried, showed a marked difference when compared with an equal portion of the bench on which the plants had not been sprayed.

It may be advisable, when experimenting with this solution, to keep the liquid off the soil as much as possible, as Mr. A. W. Pearson has pointed out in a recent issue of Garden and Forest, for his experiments certainly seem to demonstrate that the copper has an injurious effect on the soil when used out-of-doors. A similar result is quite possible with Roses under glass, though I do not know of any such instance. It is best to remove all decayed leaves, especially if affected with "black-spot" or mildew, and to burn them at once. Cleanliness is essential to the highest cultivation of most plants, and to none more so than to Roses. The first crop is the hardest to manage, and strong, well-ripened plants should be selected and every possible advantage given them.

For early crops of hybrids in pots it is necessary to start plants into growth at once, as at least twelve weeks will be required to bring them into bloom. In the matter of heat much care is needed to secure early hybrid flowers. When given too much heat in the first stages of growth the shoots are likely to prove blind, and though these blind growths sometimes make another start later in the season, and then produce flowers, this hardly repays for the loss of time and space in the first place. The better plan is to start Hybrid Roses with but little heat, and gradually increase the temperature up to fifty-six degrees as the growth advances. A stimulant in the form of liquid manure should be given as the root-action increases, care being taken not to sour the soil by injudicious use of the latter. After the holidays it is much easier to force hybrids into bloom, and while care is at all times essential if fine flowers are desired, the plants are less impatient of any slight omission when the processes of nature are less hurried.

In the selection of early varieties Heinrich Schultheis should not be omitted, this being one of the best early pink Roses, though closely followed in good qualities by the old favorite, Anna de Diesbach, and also by Anna Alexieff. In the same class are the standard sorts, Ulrich Brunner, Mrs. John Laing, Madame Luizet and Magna Charta.

The propagation of Tea Roses for next year's stock will soon demand attention, and where the stock-plants are limited in number it is best to begin the work early in the season by putting in successive lots of cuttings as the wood can be spared. This is not the only consideration in the matter, for there is also a decided advantage in having strong and sturdy plants in readiness for early planting the following summer.

Still another sport from Perle des Jardins has been sent out during the year, and being of Canadian origin has been named Toronto. It is claimed to be superior to its parent in all respects, though of similar type.

Holmesburg, Pa. *W. H. Taplin.*

Pot-plants for Spring Use.

IN addition to the commonly grown *Deutzia gracilis*, *Astilbe Japonica* and a few other shrubs and herbaceous plants which are forced for spring use, and generally put in tubs or pots, and stored in pits until required, there are several which may be added with advantage. The common Foxglove (*Digitalis purpurea*), in purple and white varieties, makes an excellent plant for piazza decoration. Good strong plants, potted now and placed in a cool pit, come along with scarcely any fire heat and bloom by the 1st of May, at which season, in this latitude, it is scarcely safe to expose more valuable forced plants, such as Roses, fancy Pelargoniums, and the like. The common Canterbury Bell is another equally good plant, and is just a little later than the Foxglove. Last year I experimented with quite a number of dwarf-growing hardy plants, with a view to testing their value for early forcing, with poor success. Many were very pretty, but the great objection is their poor lasting qualities. A few, however, were added, which may be considered useful, mainly on account of dwarf habit and unique color. Among these are the Swiss Bugloss (*Ajuga Genevensis*), which produces numerous dense spikes of intense indigo blue flowers, which last a long time. Another is the comparatively new and pretty Mexican Alum-root (*Heuchera sanguinea*). This plant, in addition to handsome foliage, a characteristic of the genus, and for which reason alone many of the species are grown, produces spikes fifteen to eighteen inches long, of fair-sized magenta-red flowers. *Brunella Webbiana*, a very handsome species, has violet-purple flowers of good lasting qualities. The main objection to this is the fact that an inferior, yet bright and free-flowering species is a common weed everywhere.

English hybrid Primroses are becoming as generally grown for market purposes as Violets. They are sure to become popular, and remain so. Their flowers are produced in great abundance during February and March under the same treatment given to Violets, and are of decided colors and fragrant. Clear yellow is the favorite color now, but good crimsons and whites will be in demand. No two more beautiful colors could be associated in a bouquet than Primroses and Forget-me-nots, nor are there two names more full of sentiment. It

can be said of these, as of the Rose, that the name gives more than half the charm.

Every autumn we place on the steps leading to the front entrance, and also in the recesses around the door, a dozen more pot-plants of the Japanese Anemone (*A. Japonica alba* and *A. Japonica hybrida*). No plant has proved so useful, being far superior to the early Chrysanthemums for this purpose. While it is not a Chrysanthemum, it is yet a Japanese plant, and so comes as a natural, and happily chosen, forerunner to the queen of autumn. Although I have before referred to its culture for this purpose, a brief account of the treatment is given here. I usually shake the soil off the old crowns, and if too large reduce them; then repot in good heavy loam. Toward the blooming-season a little liquid manure is given. If starting with fresh stock about five crowns should be put in a ten-inch pot; this is a quicker way of producing a specimen than potting singly and waiting for them to grow large enough. We store the plants in a barn cellar, and keep them moderately, but not dust dry until March, when they are brought out and treated as already stated.

The latest blooms picked in the open are from the Perfection Violets. The value of Violets over Pansies is their perpetual blooming habit. We have here only two varieties, but in England, and particularly in Scotland, a specialty is made of them, and many varieties are catalogued, representing several shades of color. They are used for spring bedding, and either in lines or masses are very effective. The severity of the American climate is against their use in the way practiced in Scotland. Here we have to rely almost solely on seed for our stock, and this is against perpetuating any required variety true to color. There the cuttings are taken in late autumn, dibbled in "cradles" in the open, with the protection only of a few leaves or Russian mats in very severe weather, and the rooting is made mostly during the winter.

Another interesting late-blooming plant is *Veronica longifolia*, var. *subsessilis*. I think it would make a good pot-plant, and intend to try it during the coming season. It is a remarkably robust and distinct variety with long spikes of deep blue flowers.

Wellesley, Mass. *T. D. Hatfield.*

Notes from the Harvard Botanic Garden.

ASTERS IN OCTOBER.—In GARDEN AND FOREST, vol. iii., p. 552, attention was called to *A. Shortii*, *A. Tartaricus* and *A. turbinellus*, good late-flowering Asters. These three species have again proved to be effective, reliable and the last to bloom. The group may be extended, however, by the addition of *A. diffusus* and *A. multiflorus*. Both of these plants were still in full flower about the middle of October, and they are valuable in giving a greater range of color to the later representatives of the genus than that afforded by the flowers of the first selection of species. *A. diffusus* attains a height of about four feet, and is very profuse in the production of branches. The leaves are lanceolate; the flowers are small, half an inch in diameter, and exceedingly numerous, and the ray-florets white, with reddish purple disk. These dense masses of flowers are very effective. The plant is of erect, yet graceful habit, and quite common in its wild state. *A. multiflorus* is also common, and from three to four feet high. The stems under cultivation are so top-heavy that support is necessary to keep them in an erect position. The leaves are small, linear, and arranged very closely on the stems and branches. The flowers are white, with yellowish disk; in size somewhat inferior to those of *A. diffusus*, and packed upon the branches in enormous quantity. *A. turbinellus* is undoubtedly the best October Aster, and while *A. Tartaricus* is not so attractive, it is still much to be desired on account of the display it affords in October and November, when all other Asters, and almost all other flowers, are past blooming. The third place in order of merit might be equally divided between *A. Shortii* and *A. diffusus* with perfect justice to each, and admitting that the flowers of the former last the longer. But having already a blue-flowered variety in *A. turbinellus*, *A. Shortii* will be discarded in favor of *A. diffusus* where it is desirable to curtail the number of species.

BOCCONIA CORDATA.—To say that this plant is an ally of the Poppy, requires a botanist's knowledge. Its stately growth and insignificant flowers would certainly not convey that information to those who inquire into the mysteries of plant-life no further than is necessary to secure pleasing contrasts in the garden or bring grist to the mill by some of the many ways, direct and indirect, in which plants contribute to the comforts and necessities of mankind. This Poppy, while not like the oriental Poppy, conspicuous at a distance, has attractions which are still worthy of notice. It is a plant of large growth, averaging seven feet in height. The slightly branched stems are erect, well furnished with large cordate and freely lobed leaves (bright green above and glaucous beneath), and terminate with very large panicles of pinkish white flowers. The number of the flowers, arranged closely together in great clusters, rather than their individual beauty, characterize this variety. *B. cordata* is a perfectly hardy herbaceous perennial, and when thoroughly established rapidly forms compact masses of handsome contour. The flowers develop in August and September, and the stems retain all their leaves until hard frost makes its appearance. These qualities render the plant very desirable, as it is most effective in large clumps on the greensward. *B. cordata* is not particular as to soil, but the growth gains strength in proportion with the increase of richness and depth. The plant is a native of China. It was introduced into England by Sir George Staunton in 1795, and is readily propagated by division.

SILPHIUM LACINIATUM, VAR.—The common Compass Plant (*S. laciniatum*) is perhaps the most popular and most generally cultivated species of the genus. It is a plant about six feet high, producing its starry yellow blooms on the upper portion of the stems with much freedom during July and August. The radical leaves are of oval outline, flat, parted, laciniate, from one to three feet long, the petiole occupying two-thirds of their length. They form a thick cluster from which proceed the stems, sparingly clothed with much smaller leaves. It is of bold aspect, as are all the species, and suitable for positions requiring massive rather than graceful or pretty subjects. There is one specimen of a supposed variety flourishing here which differs from this species in several important particulars. The leaves are not flat, but somewhat sulcate, and the segments are waved and twisted to a considerable degree. The stems are from eight to ten feet high and are thickly set with small leaves. The flowers measure three inches in diameter, and are of a paler yellow color than those of the species, while they appear only during September and October. This plant has been in cultivation here for many years, but its origin does not appear to be known to any one. There may not be any strongly marked botanical difference between it and the species, as most competent authorities aver; but when viewed from the gardener's standpoint the dissimilarity assumes importance. The difference in the leaves, the height, and, most important of all, the flowering season distinguish it from the type. All other Silphiums are far past their period of brilliancy when this form of *S. laciniatum* expands its first blossoms. This fact in itself will be sufficient to stimulate inquiry relative to the existence of other specimens exhibiting the same characters; and if such plants are to be found, any information that can be gained about them would be interesting, not to say useful. It is hardly likely that any similar variation of the species, which may exist in gardens, can claim the specimen in question as its parent, for it flowers so late in the season that seeds never ripen.

Cambridge, Mass. *M. Barker.*

The Cranberry Scald.—In a recent visit to a large Cranberry-bog it was found that the scald had taken more than one-third of the crop, and from the appearance of the berries in the crates stored in the capacious cellar it seems probable that the second third will decay before the crop finds its way to the Thanksgiving market. There is no doubt that the scald is assuming an alarming form, and should it increase for the next ten years as it has in the past, there will be no profit from the bogs. The first thought is to put some substance upon the vines to ward off the enemy, as Paris green is used to destroy the curculio and the codling moth, and Bordeaux mixture the black rot of the Grape, which, by the way, is not very different from the scald of the Cranberry. There is no question about the Cranberry trouble being caused by a fungus, or that it is in all parts of the plant, leaf, stem and root as well as fruit. It does not come from the outside, as a rule, and that it is due to the scalding effect of the sun has no foundation in demonstrated fact. It is no easy matter to apply a fungicide to a bog so that it will effectively check the scald. An experiment embracing no less than ten substances, all standard fungicides, upon forty plots, during last year, gave only negative results. While, therefore, it may be possible to reach the enemy in this way, success is not probable, and some other method should be looked for. Let it be remembered that the Jersey bogs are largely muck-bogs, especially where the scald is worst. In other states, and where there is no such trouble, the plants are grown in sand.

While the Cranberry-plant is fond of moisture, it does not follow that impure and stagnant water is as beneficial as that coming to it from a clear running stream. The bogs that are

now badly scalded may very likely be improved by getting the roots of the plants into a more healthful stratum. This can be done by covering the bog with a layer of sand so thick that the roots may work up into it, leaving the old portion below. If, in addition to this, more attention could be paid to irrigation and drainage, it is not improbable that bogs now practically unprofitable might be made to pay a large dividend upon the investment. Persons who have sanded a few square rods as an experiment intend to extend the area this winter.

Rutgers College. *Byron D. Halsted.*

Correspondence.

In the Shore Towns of Massachusetts.

To the Editor of Garden and Forest:

Sir,—Beginning at the New Hampshire line, in my search for public holdings in the shore towns of Massachusetts, I found that Salisbury has no land belonging to the town, no place on the shore to which the public can resort as a matter of right. Salisbury Beach runs the whole length of the town, from the mouth of the Merrimack River to the state line. It formerly belonged to the people in common, and was then regarded as of little value. It now brings important annual revenues to its owners, a corporation, entitled "The Commoners of Salisbury." The members of this body, forty or fifty young and vigorous business men, hold that they are more truly in the legal line of descent and inheritance from the early settlers than the present town itself. The town has so far recognized their title as to tax them on this beach property for the last seventy-five years, but last spring the people voted in town meeting to inquire into the title, and appointed a committee for that purpose. The corporation does not sell land, but leases sites for summer cottages, and there is an almost continuous village of these habitations along a great part of the beach, many of them fairly good houses. Visitors are welcome, for the owners wish to lease cottage sites to more people, but it is all private property, and the public goes there as a matter of sufferance or privilege, and not of right.

The city of Newburyport has a fine system of public parks or open spaces. Some of them have been long in use, and are restful and beautiful, while others are still in process of construction and development. Washington Park consists of about eight acres and has many fine trees. Brown Square, in front of City Hall, is two acres in extent. Kent Street Common, a half-mile away, has five acres in grass and paths. A mile and a half out on High Street is Atkinson Common, ten acres given to the city by Mrs. Eunice Atkinson Currier; this tract is not much improved as yet, as there are few residents in that vicinity, but it will be developed as the increase of population may require. Riverside Park has a front of 125 feet on the river and runs back 500 feet. The Improvement Association is raising money to build a bulk-head here, and thus furnish a public bathing-place. James Parton was much interested in the movement for new public reservations. He told me that for several years he had opened the grounds around his house to the children of the city for a play-ground—over an acre, with sward, flowers and shrubbery. Mr. Parton said the flowers were "almost never touched; not five times in a summer." These children's thought of him is a pleasant fame for this bright-spirited man to leave behind him.

Some of the leading women of Newburyport would like to have "The Captain's Well," which is celebrated in Mr. Whittier's poem of that name, preserved for public use, as the Captain desired, and as a tribute and memorial to the venerable poet. I believe the well is near the road between Newburyport and Amesbury, and it was said to be covered over and not in use, but I did not see it.

Newbury includes nearly all the northern half of Plum Island, with its extensive beaches and shore lands. These all belong to private owners, and ground is leased to summer visitors for cottages, as on Salisbury Beach. Many thousands of people from Massachusetts and New Hampshire towns come down the Merrimack Valley every summer to these beaches. Several crowded steamboats brought excursions the day that I was on this part of the shore. There is no public holding on the beach, but inland there are two small reserves owned by the town, Upper Green and Lower Green, four or five acres each, unfenced, grazed by the neighborhood cows, a few trees, and a school-house on each, with some interesting history in each case, beginning with the first white settlement of the region. The Lower Green was originally the Common of the "Old Town," which was laid out here near the Parker River before Newburyport was thought of. I saw a plat of this most ancient village, with the common much larger than it is now, and the adjacent house-lots all marked with their their owners' names.

The Upper Green was part of a farm owned by a minister in early times. He left this triangle between roads unfenced, and in time the town assumed title, and holds it by undisputed occupancy. Both these small parks have been encroached upon and reduced in area. A little care would make them attractive and valuable to the people of the town, who have no other places of public resort to which they can go as a matter of right.

The public lands and rights owned by Rowley are: 1. Rowley Common, in the nature of a park, in the centre of the village, about four acres, acquired from the Widow Hobsen for a training-field, by exchange of land, about 1670. It was beautified by planting a single row of Elms around it in 1839. 2. Two smaller commons, also in the village, both planted with Elms in 1839. 3. The town landing on Rowley River. 4. About one-fourth of an acre at the stock-yard, so-called, for use as a place for leaving horses when working on the salt-marshes. This has been somewhat encroached upon. 5. A small common in front of Town Hall, set with trees in 1856. There are no known town rights in the beach on Plum Island, nor any shore rights except the one town landing mentioned above, but it is probable that the public has the right of landing on Nelson Island, in Plum Island River, as this landing has always been in use by those who dig clams. Nobody else has any use for it.

This town, perhaps in greater degree than any other in the commonwealth, has remained the same as in earlier times, with people of the same blood living on the same lands, and living much in the same manner; the population is about the same, without much mixture from abroad. There are Bradstreets living to-day, as always, on the farm laid out to Humphrey in 1634, then in Ipswich, now in Rowley by annexation. The same, or nearly the same, may be said of the Mighills and of other families. The general interest in matters of local history is much less than one would expect to find here, but it is an interesting town to the student of civilization and to any observing visitor. Some of the locally historic names get changed or lost, and the errors are perpetuated by the map-makers. Thus a recent map shows the old name Hunsley Hill changed to Huy Slow, which is printed over Bradford Street Hill, leaving the real Hunsley nameless. The old Rowley, with its interesting survivals from a remote past, will not last much longer unchanged. The wayfarer who seeks a summer home by the sea pauses here and there along these quiet roads and notes the attractions of the scenery. "There is a fine view from this point." A new house will rise here, and alien faces will look from its windows across the fields which were first tilled by men whose very graves have been forgotten.

Ipswich has no public holding on the shore. There is a small and pleasant area called Meeting House Green in front of the principal church. This is the only park or public ground. The town contains an eminence with an interesting name—Heartbreak Hill—and I have been trying to find out whose heart was broken there, and why it was broken. I soon met the story of an Indian girl who loved a sailor and climbed to this hill-top to watch for his unreturning sail till she died. This account may be true, but I should like to know how old it is in this case. I am inclined to distrust it because the same story, or nearly the same, is told of so many places, Lovers' Leaps, etc., in all parts of our country. It does not seem that all these Indian girls could have broken their hearts in the same way. Early in this century, perhaps earlier still, the story was told in the Bradstreet family here of a young woman of their own race and name, Hannah Bradstreet, who went up this hill every day to see if her lover's ship was coming up the bay; and it never came. What we need to know about it is the time when the name was first given to the hill, or when it came into popular use, but I fear it is all irrecoverable. I am trying, however, to ascertain when the name was first put on the maps and into the Ipswich town records. Perhaps some reader of this account may be able to give me this information.

Essex has no real sea-shore, as Ipswich and Gloucester meet on the ocean beach, but Essex has all the lower reaches and broad expansions of Essex River, and all this shore is just about the same as sea-shore. It is all private property except the Town Farm and two or three landings. For many years a part of the Town Farm has been devoted to the uses of a public summer resort, the town officers leasing sites four rods by three for cottages, two adjoining lots to one person if desired. There is an area for picnics, clam-bakes, fish-dinners, etc. These grounds are on the bank of the river, and any-

body has a right to go there. The town owns the ground around several of the old landings, in one case two acres or more. Two of these places are now rented to ship-builders. The streams are said to be carefully guarded from defilement. The town has some interesting places connected with the history of a distinguished family, the Choates.

Gloucester, with 25,000 people, has no park or common or public holding of any kind that can be used as a place of resort. A fragment of beach near the Pavilion Hotel belongs to the city, but it is too small to be of much use. I asked some of the leading men where their people go for band-concerts or any out-of-door entertainment, and they said, "the band takes the sidewalk, and the people stand in the street." Next year Gloucester will celebrate her 250th anniversary, and her people have already begun their preparations for the event. They wish to establish an appropriate memorial at that time, and somebody has proposed that they endow a factory, so as to furnish work for laborers now unemployed. I urged the need of a park, common, or open space of some kind for public resort. The effort to establish a memorial of this nature would awaken widespread interest, and would attract the moral support of the Trustees of Public Reservations, of the press of the state, and of all public-spirited citizens. If anybody born in Gloucester has gone away somewhere and got rich, I hope he will remember his native city now, and help her people establish a Memorial Park. There can be no doubt that the higher interests of the city have suffered loss and injury from the want of any place of public resort. The local journalists are earnestly in favor of the park idea, and the farm adjoining the city, on the shore on the lower side, is admirably adapted to the purpose. It is the site of "The Old Stage Fort."

I walked entirely around Eastern Point, and found that the Eastern Point Associates have built a lodge at the entrance to their domain, and swung a gate across the carriage-road, with a notice requiring visitors to obtain permission in the lodge. I went on and was not recalled. The gate is intended chiefly, I suppose, to assert the right of exclusive occupancy, and people enter and pass freely, but a picnic party of country-folk would probably be turned back. There is no public holding along this very attractive shore, and the public has no right whatever even to walk by the sea here. I spent a summer at East Gloucester twenty-five years ago, and where I then passed weeks in solitude on the shore there are now long streets of costly houses. Thus far my quest shows leagues and leagues of shore lands all private holdings, a great population inland hedged away from the beach, and all conditions pointing to a time, not remote, when nobody can walk by the ocean without payment of a fee, as formerly we had to pay for a glimpse of Niagara.

Boston, Mass. *J. B. Harrison.*

Exhibitions.

United States Nurseries, Short Hills, New Jersey.

THE fall exhibition of plants and flowers, held at the United States Nurseries by Messrs. Pitcher & Manda, has become an interesting annual feature, much enjoyed by an increasing number of visitors. Extensions are still going on at this nursery, and north of the range of which the large Palm-house is the centre the sloping ground has been covered with six ranges of greenhouses some 200 feet long. These houses cover a rising slope with a southern exposure, and they form a striking picture; and in them, for the first time, Messrs. Pitcher & Manda are able to exhibit Chrysanthemums with justice to themselves, the former show-house being rather small when such free-growing plants as Chrysanthemums are to be shown.

During the exhibition week, October 26th to October 31st, the upper new range was filled with the new Chrysanthemums which have been selected from the thousands of seedlings of the establishment. Messrs. Pitcher & Manda have adopted the plan of growing their promising seedlings two seasons before offering them to the public for sale, and in the collection shown their best gains were seen, showing probably their fixed character. Their seedlings as thus shown were strikingly robust and well furnished with fine foliage, and mostly of the medium height so much desired by growers. Some single-stem plants were shown which, while taller, were not abnormally high.

Probably the most striking plant shown was W. A. Manda, a yellow hairy kind, well incurved and of a deep rich color. It is a very vigorous grower, but not more so than another seedling, the improved Mrs. Hardy, which in this respect is a contrast to the original. The flower of this variety is of the same character as Mrs. Alpheus Hardy, but is much deeper. Mrs E. D. Adams, a large white flower, with an outer swirl of petals somewhat in style of Madame C. Audiguier, was exhibited last year in poor form, but it has improved, and is a distinct desirable kind. Of other white kinds, George Savage is a grand incurved of the purest white and of fine form. Miss M. Colgate is a white incurved flower with broader petals and of a creamy tint. Other first-rate white flowers were Mrs. W. S. Kimball, reflexed and of fine form, and two as yet unnamed kinds, 169 and 278, differing, but with very broad petals. Of the colored flowers, Harry May, a massive deep incurved flower of bronze, will charm the lover of single blooms. Of a less massive character is Mr. Hicks Arnold, an incurved yellow, flecked with red, of fine form. Mr. D. S. Brown is a pleasing flower, lemon-yellow, with broad petals. Dr. Mandeville is a yellow counterpart to Mrs. E. D. Adams.

Of the less popular, though attractive, colors were Mrs. Mercer, incurved pink, with yellow centre, and an unnamed, No. 343, a bright cherry, Japanese, with gold reflex. Numerous striking varieties yet unnamed were to be seen in the house containing this show of remarkable productions. A lower house was filled with a collection of older varieties, many of which were the former offerings of this house. Still another house was filled with the year's seedlings in countless numbers, and all the varied shapes to be found by the seedling grower. Still another house, closed to the public, was seen to be filled with Chrysanthemums, and probably contained some of Mr. Manda's future surprises. The progress shown here in the successful cultivation of the Chrysanthemum is remarkable.

In the lower house was a glorious bench, some two hundred feet long and three feet wide, of a fine strain of hybrid-tuberous Begonias, both single and double. Few things make a more dazzling display or brighten up a house more than these wonderful flowers, with their pure, clear colors. Here I noted a new *Anemone Japonica-elegans*, darker than the pink type and with narrower, more frequent petals. The large Palm-house at Pitcher & Manda's is always an attractive sight, arranged as it is somewhat on the plan followed in private places. From this house branch off numerous smaller houses filled with small Palms, Anthuriums, Dracænas, Marantas, Billbergias, Nidulariums, and all the various fine greenhouse plants, among which it is a pleasure to loiter.

The famous Cypripediums have overflowed the large house always devoted to them, and now nearly fill the next range. The rage for these attractive flowers is unabated, and the collectors seem destined to have an unending succession of new forms as the new seedlings come into flower. These plants are systematically hybridized here, and a large collection of seedlings in a quiet nook gives promise of some surprises. Among the countless plants in bloom I noted *C. insigne Amesiana*, the rare variety with a broad white margin to the dorsal petal and without spots; *C. Schrœderæ splendens*, *C. Microchilum*, *C. tesselatum porphyreum* and *C. œnanthum superbum*. I noticed some very fine specimens of *C. Spicerianum superbum* in great masses, one containing sixty flowers. A mass of Orchids in flower greeted one in the next house, Vandas, Cattleyas, Odontoglossums, Oncidiums, Phalænopsis. A specimen of *Vanda Sanderiana* shown was said to be unique for size of plant, and could not probably be matched anywhere. This specimen had twenty-five flowers on four spikes. A large specimen of *Lælia anceps* was showing fifteen spikes, and a little later will be a grand sight.

A unique plant was *Lycaste Skinneri*, var., with flowers tinted light chocolate. But among so many beautiful and unique things it is vain to particularize. The old show-house contains no flowers, but is packed full on benches and under the roof with some thousands of *Cattleya Trianæ* plants. These have probably interested some visitors more than the bountiful flowers in the other houses, for here is a new lot of unbloomed plants lately sent in by the firm's collector, and there is the pleasure to the plant-lover of looking in anticipation on some novelties. I had a look at the hardy plantation to see if possibly any plants still survived the recent hard weather. There were a few small things in good form, *Stenactis speciosa*, and some new Delphiniums; but the most striking show was made by the white, large daisy-like flowers of *Leucanthemum lacustre*, though *Helianthus Maximiliani* was still in good form in another part of the grounds.

Space will not suffice to dwell further on special plants, but I noticed one exhibit aside from these which will interest exhibitors at flower-shows. This was a complete apparatus for staging single blooms for exhibition and known as Bunyard's Standard Exhibitor; in this flowers are perfectly displayed and held at any height with a very ingenious device for labeling varieties. In the former absence of such a contrivance our

flower-shows have usually presented a makeshift and somewhat unsightly lot of boards. In spite of the distance of Short Hills from the city the exhibition was thronged by interested visitors.

Elizabeth, N. J. G.

Notes.

The forests of British Columbia will be represented at the Columbian Exposition in a building composed of every variety of native wood.

Dr. J. H. Mellichamp, of Bluffton, South Carolina, sends us fresh flowers of *Gordonia Lasianthus*, the Loblolly Bay, taken from a tree covered with bloom. It is a young tree, fifteen to twenty feet high, and last year it also produced flowers in the autumn.

Referring to the note in a recent number of Garden and Forest relative to the absence of acorns this year, a correspondent writes from South Lancaster, Massachusetts, that there has not been so large a crop of acorns, chestnuts, shellbarks and butternuts in that vicinity for many years.

The Chrysanthemum Show at Madison Square Garden, in this city, is just opening as we go to press, and promises to excel in richness and variety any exhibition of its kind ever held in this city. Special features for each day will make a constant change and a succession of fresh flowers. The late bright weather has helped to open the blooms, so that nearly all the choice varieties will be seen at their best.

According to the *Kew Bulletin* there has been discovered in the forest of Bonket-Timah, near Singapore, a supply of the most valuable species of Gutta-percha-trees, which had been supposed extinct, ignorant natives having exterminated all the trees of which they knew in their eagerness to meet a demand for this special kind of gutta-percha, which was particularly esteemed for the making of submarine cables. The *Bulletin* deplores the fact that the location of the new find has been made public, and urges the Government to provide for the protection of the trees.

The frontispiece to *Gartenflora* in the issue for October 1st is a colored plate which shows forty-six fine varieties of Hyacinths, Narcissuses and Tulips blossoming at once in the window-garden of Herr Von Pommer Esche, in Berlin. They stand in pots in a slightly projecting glass bay thrown out from an ordinary window facing south-south-east, which opens from the living-room, and is heated only from this, and protected only by a roller-shade of thin slips of wood. The plants had been started in the house and removed to the window as their flowering-time approached.

We have received, through Mr. J. Wilkinson Elliott, of Pittsburg, Pennsylvania, a box of Tuberous Begonia flowers, raised in Mr. T. Tiffin's nursery at Westboro, Long Island, where the plants from which these flowers were taken have been grown in the open air all summer. The flowers are large, several of them measuring five or six inches across, of good substance and brilliant colors—scarlet, yellow and white. They show how well the Tuberous Begonia adapts itself to cultivation in the open ground in this climate, and what a really beautiful and valuable bedding plant it is.

A correspondent of a London paper recently spoke with emphasis of the wonderful development of the Cotton-planting industry in Turkestan. It is but a few years since American cotton was introduced into that country, and exportation began upon a considerable scale only in 1884, when the amount exported did not reach 10,000 poods. Last year 2,700,000 poods were exported, and it is expected that this year the amount will be one-third greater still. Thus far the crops have all been irrigated and cultivated by hand, and the cost of labor has therefore been very large. So it is believed that, with the coming introduction of improved machinery, the industry will increase much more rapidly than during the last ten years.

No more beautiful effect of color could be imagined than that produced during the latter part of October by the creepers which clothe the old reservoir on Fifth Avenue, in this city. The long lower fields of wall were covered two-thirds of the way to the top with thick masses of Wistaria, the still vivid green of which contrasted charmingly with the stretches of gray stone above them and the flat, close garment of Japanese Ivy which covered the three projecting pavilions. On the central pavilion this plant clung so tightly to the stone that the modeling of the doorway and the tablet above it was perfectly distinct. Its color was for the most part a deep warm red, but was flecked with leaves and sprays of a lighter hue, while the terminal shoots were bright pink or still a clear light green. The general tone thus produced was of enchanting richness and softness just because it was nowhere uniform over a single foot of the surface, but produced by varied blended tints.

An illustration in *The Garden*, of London, published on the 17th of October, represents a garden urn, the base surrounded by a bed of Clematis, which has been allowed to cover the pedestal upon which it stands. The effect is charming, and shows how well taken is the point made by our contemporary, that "if some principle of draping with living plants was carefully considered before introducing stone urns, temples, terraces or fountains into rustic scenery fewer of the violent and tasteless anomalies which so often disfigure our gardens and parks, both public and private, would be seen." The French for many years have covered the pedestals of out-door statues and other works of art with Ivy and various climbing plants, and in this way have succeeded in harmonizing such objects with their surroundings of grass, shrubs and trees.

As a result of the memorial recently laid before the President of the United States, asking that certain lands be reserved from settlement, with a view of using them as forest-reserves, the Secretary of the Interior has made the following appointments: Mr. M. J. Haley, of Helena, Montana, to examine the proposed reservation at the head of the Flathead and Marias rivers; Mr. J. F. Majors, of Jadis, Minnesota, to examine the proposed reservation in northern Minnesota; Mr. B. F. Allen, of Los Angeles, California, to examine the proposed reservation on the Tulare River, embracing the forest of Big Trees; Mr. J. S. Stidger, of Santa Fé, New Mexico, to examine the proposed reservation in western Texas at the head-waters of the Pecos River. Friends of the movement to secure these reservations can communicate directly with these agents in case they have any suggestions to offer in the premises.

A correspondent of the *American Architect and Building News* recently described a miniature model, now on exhibition in Chicago, which gives a bird's-eye view of the future aspect of the World's Fair grounds and of the principal buildings thus far determined upon. It has been constructed in the old exposition building, covers a space of 100 x 50 feet, and affords, says the writer, "a better view of the structures in their entirety than very likely will be possible on the exhibition grounds. The relative positions and sizes of the buildings are correct, and the whole lay of the land is carefully imitated. Lake Michigan is indicated by a stretch of running water, being, in fact, a diminutive portion of the lake introduced into the building. Jackson Park, Midway Plaisance, all, are represented by a clayey, paste-like substance painted green. Ground Hemlock is used in the place of the symmetrical Elm, and the whole settlement in the night-scene is illuminated by the smallest-sized electric lamps. When these shine across the turbulent lake or are reflected in the quiet lagoon or shine forth from the doors and windows of the miniature buildings the effect is quite unique."

The October bulletin of the Hatch Experiment Station of the Massachusetts Agricultural College contains a report of the result of experiments during last winter with special fertilizers for plants under glass. For this purpose six plots were arranged in each of two greenhouses, and planted with the same number and kind of Carnations at the same time in September. The soil, temperature, ventilation and all other conditions were kept as nearly alike as possible, and the number of blossoms produced by each plot was recorded. Observations continued during thirty-one weeks showed that the plot fertilized with nitrate of potash gave the best results, sulphate of potash the next, and dissolved bone the poorest result. This result differed from that of the previous winter, when bone-black stood first and sulphate of potash second, and is probably due to the insoluble condition of the bone-black, which in previous tests did not give good results until the latter part of the trial. In five experiments made in this line three have been in favor of bone-black, one of sulphate of ammonia and one of nitrate of potash. Sulphate of potash has stood second in every test. The nitrate of soda and muriate of potash, in every case where the crop has had a tendency to mildew, have given poor results, owing probably to their power of holding moisture near the surface of the soil. In the growth of the Rose, Lettuce and Carnation a moist atmosphere or a very moist soil in contact with the plants, especially at night, must be avoided if success is expected, and, therefore, such fertilizers as nitrate of soda and muriate of potash would aggravate any such condition. The same bulletin contains a chapter on "Experiments in Greenhouse-heating."

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